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# **Empirical Research and Paranormal Beliefs: Going Beyond the Epistemological Debate in Favour of the Individual**

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## **Summary**

A brief look at the empirical literature of the past ten years reveals the clear debate raging over the pertinence of paranormal study to the field of psychology. Each of the arguments put forward by sceptics and believers is the product of the epistemological context in which they find themselves. Each addresses a different issue, using different terminology and different scientific approaches. However, these studies do reveal certain personality traits among paranormal believers who use their paranormal beliefs to exercise mental control and organisation, to cope with and manage anxiety, while moderating this with a certain emotional intelligence. Anxiety could well be a common factor underlying all aspects of the personalities of paranormal believers. It seems necessary therefore to leave psychology out of any epistemological debate, in order to enable the study of how being a paranormal believer helps or hinders the individual and their relationships. Refocusing on the experiences of the individual may provide a consensus for future research in this field.

## **Keywords**

paranormal, anxiety, personality, emotional intelligence, religion, epistemology

Although the appeal, beliefs or practices associated with the paranormal have been studied thoroughly for decades, there is currently no consensus in this field, which is still considered 'dubious' by a lot of researchers. Consequently, the diversity of the studies, the variation in what is considered paranormal and the many different aspects of such beliefs render it difficult to arrive at an interpretation or general overview of the results. However, it seems problematic for a human science to ignore a phenomenon which affects all sections of

the population and individuals of all ages. This overview of the related empirical literature only features research published in mainstream psychological journals, rather than those specialising in parapsychology or psychic phenomena. Most of the publications specializing in parapsychology may be of comparable scientific quality (Mousseau, 2002) and some researchers may publish in both types of publications, but they do not enable us to take into account the general trends seen in mainstream psychology over the last ten years.

However, there are some recurring trends and problems from which we can form a consensus for future research in this field. Indeed, the debate over the pertinence of paranormal study to the field of psychology is taking place in two different contexts which could be complementary to each other. On one hand, the dispute is rooted in research paradigms and the definitions and interpretations of the beliefs or experiences concerned, since, in the study of beliefs more than any other, the personal opinion of the researcher (Smith, 2003) and the measuring tools selected can lead to different results. This invites caution. On the other hand, these beliefs and practices seem widespread and concern not only social psychology but also developmental and clinical psychology. This invites our interest.

### **Differing Opinions within Psychological Sciences Regarding the Paranormal**

A first point of disagreement concerns research paradigms. Those who strictly reject any psychological approach to this field cite the argument of scientific impossibility. Stanovich (2004) recalls that, in 90 years of ESP research, it has not been possible to create anything which could be considered duplicable or real. Neither have those studies yielded convincing evidence (Jeffers, 2003). For Burns (2003a), this will always be the case, since there is no method based on the laws of physics as we know them today which would enable a reliable (re)production of paranormal beliefs or experiences. In addition, most of the studies are based on data obtained through self-administered questionnaires. According to French (2003), the variables which correlate with “false memory” also correlate with a tendency to report paranormal experiences. Consequently, a lack of prior knowledge, generalised methodology and clear patterns leads to the problem of non-duplicability, and thus unpredictability, rendering it impossible to falsify hypotheses. Stanovich (2004) concludes that this creates confusion between a pseudoscience and psychological science and states that continuing this kind of research threatens the scientific credibility of psychology. However, Mousseau (2002) points out that, while this field of

research remains marginalised due to a lack of duplicability, falsifiability and predictability, these are the very qualities which are inherent to the study of anomalies. He remarks that, in terms of its principles, methodology, epistemology and communication, parapsychological research should be taken just as seriously as research in more conventional fields.

A second problem is that definitions of phenomena considered paranormal and associated beliefs do not always take into account the same facts and thus lead to variations in interpretation and comprehension. The great majority of these studies used the measuring scale created by [Tobacyk & Milford \(1983\)](#) with variants (see below). Their Paranormal Belief Scale provided the starting point for more systematic psychological research in this field. They defined the paranormal according to 3 criteria: 1) inexplicability in terms of current science, 2) explicability achieved only by major revisions in basic limiting principles of science and/or 3) incompatibility with normative perceptions, beliefs and expectations about reality. While the first two elements of this definition can, within reason, be used by all researchers, the third element can be problematic. What are 'normative perception', 'belief' and 'expectation' about 'reality'? These concepts allow for very different starting points and interpretation of results depending on the observer. [Lindeman and Aarnio \(2006\)](#) for their part, define PBs as a group of beliefs in physical, psychological or spiritual phenomena combined with some ontological properties of another type (for example, the psychic combined with the physical defines psychokinesis, the spiritual combined with the physical defines miraculous healings, etc.)

This pitfall is exacerbated by the fact that the majority of studies are based on self-reported data and that several paranormal belief scales have been developed from predefined research assumptions about what these types of beliefs are or should be based on, without their necessarily being rooted in the personal experience of the sample. The researcher and the interviewee do not always share the same definition of what is paranormal and differential item functioning (DIF) may then affect the results ([Lange & Thalbourne, 2002](#); [Aarnio & Lindeman, 2005](#)).

The third difficulty stems from the use of very different measuring scales, sometimes only used in one previous study, and their multidimensionality. Tobacyk and Milford's Paranormal Belief Scale (PBS), (1983) was based on 61 items of paranormal belief which are gathered, through factor analysis, into 7 dimensions underlying the structure of this belief: traditional religion, psi belief, witchcraft, superstition, spiritualism, extraordinary life forms and precognition. The number of initial items is reduced to 26 in the Revised PBS and then to 16 by Lange, [Irwin and Houran \(2001\)](#) who 'purify' it of

differential item functioning according to gender and age. This purified RPBS has two factors: Individually Oriented Beliefs or New Age Philosophy (11 items), and Socially Oriented Beliefs or Traditional Paranormal Beliefs (5 items) (Watt, Watson and Wilson, 2007). The indiscriminate use of these scales makes it difficult to compare results. The Anomalous Experience Inventory or the five-factor Spiritual and Religious Dimension Scale (SRDS) defines 3 dimensions: Traditional Christianity, New Age or Unaffiliated Contemporary Spirituality and Paranormal Beliefs (Nasel & Haynes, 2005). Not to mention those scales only used in one previous study, which are not always very reliable.

In addition, some researchers raise the problem of a lack of interpretation. Bierman (2001) questions whether the lack of duplicability may be less due to a statistical error than to the possibility that, in a field where the mind interacts with matter, another reality could emerge. Equally, a lack of knowledge about certain functions of our brain and about our beliefs, needs and expectations could explain psi phenomena (Alcock, 2003). If this were the case, it could completely transform the limits of our knowledge and understanding of the mind (Burns, 2003b). Parker (2003) questions whether the unpopularity of psi phenomena, fraudulent or genuine, in the field of psychology, does not explain why these parapsychological issues remain unanswered.

While these paradigmatic flaws are very real, several studies rely on the magnitude of the phenomenon in order to attract the attention the field merits from psychologists. Bobrow (2003) observes that, according to a research on Medline using the keywords 'paranormal' and 'psychic', most people in the USA and UK have at least one paranormal belief, as confirmed by Rice (2003). If interest in the paranormal is therefore real, perhaps it is not without consequence, since it could lead to social marginalisation and pathological behaviours (Roussaux & Dubois, 2002; Muris, Merckelbach & Peeters, 2003). Finally, Cardena, Lynn & Krippner recall that: "Psychology cannot claim to be comprehensive if it fails to account for varieties of experiences distinct from those considered normal. To fully understand the totality of human experience, we need to provide reasonable accounts of phenomena that, although unusual (...) or apparently far-fetched (...) are an important part of the totality of human experience." (2004).

## Who Believes in or Experiences Paranormal Phenomena, and Why?

### *Pathology and Personality*

The definition of exactly what may be classed as 'paranormal' has still not been adequately resolved. However, the large amount of research concerning PBs, even that carried out on different populations, with different procedures and patterns, reveals some tendencies which predict types of personality, pathology, or specific cognitive abilities. These are only tendencies however and it is beyond the scope of this brief look at the literature to make judgements on the psychometric qualities and predictive value of the measures used.

Thus, while no psychopathological predictor of religiosity (among students) was found by Thalbourne (2007), some research does demonstrate a potential association between psychopathology and general spiritual functioning (MacDonald & Holland, 2003), and more precisely, higher scores on measures relevant to schizophrenia for paranormal believers (Roussaux & Dubois, 2002). It seems acknowledged, according to the DSM IV TR criteria (Delbrouck, 2008), that a mystical mentality and reference to paranormal experiences are linked to a schizophrenic personality. However, these schizotypal tendencies would only be related to individually-oriented beliefs (New Age philosophy) of the paranormal beliefs (Houran, Irwin & Lange, 2001). Hergovich, Schott and Arendasy (2008) point out that, although the dimensions of precognition, spiritualism, psi and witchcraft are predicted by adolescent schizotypy, this is not the case for the 3 other dimensions (traditional religion, superstition and belief in extraordinary life forms). Moreover, it would seem that cognitive disorganisation may act as a moderator, enabling reference to paranormal experiences or beliefs to offer a belief framework for interpretation of the experiences of the schizotypal individual (Goulding, 2005; Genovese, 2005; Schofield & Claridge, 2007). Thus, paranormal beliefs would play a role in providing mental control and organisation (Wain & Spinella, 2007).

In a borderline personality, narcissism correlates with ESP beliefs and PK but not with general PB scores (Roe & Morgan, 2002). However, extrasensory perception and psychokinesis are both examples of 'extraordinary capacities', and a prevalence of these in a narcissistic personality is therefore not surprising, although there seems to be no link between narcissism and paranormal beliefs generally. In the field of hysterical neuroses, some dissociative tendencies are reportedly linked to paranormal beliefs (excluding precognitive experiences) (Rattet & Bursik, 2001) or New Age philosophy (Houran,

Irwin & Lange, 2001) and fantasy proneness among adolescents (Muris, Merckelbach & Peeters, 2003). Dissociative tendencies that would be linked to anxiety (Muris & al., 2003), while anxiety and depression are predicted by superstition (Dudley, 2000).

The link between paranormal beliefs and anxiety or fear (Lange & Houran, 1999) is frequently observed and even seems to be a common factor. It is possible that paranormal beliefs serve to manage anxiety, especially when rooted in childhood. Indeed, biographical research (Streib, 1999) reports belief in ghosts and demons to be a way of coping with childhood anxieties. Furthermore, New Age orientation is directly linked to attachment insecurity (Granqvist & Hagekull, 2001) and paranormal belief may offer a powerful emotional refuge to individuals who endured the stress of physical abuse in childhood (Perkins, 2006). However, this coping function would be dependent on moderation by emotional intelligence. According to Rogers, Qualter, Phelps and Gardner (2006) the tendency not to use active behavioural coping is moderated by low emotional appraisal in predicting paranormal beliefs. Moreover, using avoidant coping moderated by a high utilisation of emotions predicts New Age philosophies. Thus, superstition may be a way to cope with a world perceived as hostile for suggestible and field-dependant individuals (Hergovich, 2003). However, even if literature shows that childhood experiences of diminished control can lead to anxiety, and that anxiety can lead to fantasy proneness and paranormal beliefs as a form of coping, or dissociative tendencies and psychopathology as an adult, what about the majority of adults who believe in the paranormal and do not report such childhood experiences (Watt & al., 2007)? In this case, it is interesting to see if these individuals report anxiety in another form.

The link between PB and anxiety can also be observed in individual personality traits (Eysenck's Big Three). Indeed, among adolescents, only neuroticism personality traits and a perception of the exterior world as hostile or a source of problems seem fundamental to paranormal beliefs, while extraversion and psychoticism seem unrelated (Williams, Francis & Robbins, 2007). Fear and mistrust of the exterior world which can translate into the feeling that you are not in control of your life and that you are subject to forces outside your control. A hypothesis which is all the more interesting since this feeling of an external locus of control can be precisely linked to childhood abuse as previously mentioned. For Dag (1999) paranormal beliefs may be a personality-system that brings a kind of control feeling when insufficient internal control perception with a cost of psychopathology occurs. In the same way, Dudley (1999) observes that superstition is used as an external locus of control to

overcome feelings of failure. Similarly, [Watt and al. \(2007\)](#) point out that paranormal belief correlates negatively with perceived childhood control and shows little relationship with any of the spheres of the Control Questionnaire. [Spinelli, Reid and Norvilitis \(2003\)](#) add that belief in and experience with the paranormal is related to thinness of personality boundaries. However, [Auton, Pope and Seeger \(2003\)](#) remark that non-pathological personality traits such as achievement, understanding, education, affiliation, and a positive cognitive structure do not differ between low and high paranormal believers.

### *Emotional Intelligence, Cognition and Gender*

Belief in and experience with the paranormal seems related to gender role ([Spinelli & al., 2003](#); [Auton & al., 2003](#)) and to a form of intrasexual competition ([Weiss, Egan & Figueredo, 2004](#)). [Dag \(1999\)](#) points out that females' scores are higher in superstition, dissociative experience, psi belief, witchcraft and precognition and males score higher in extraordinary life forms. [Lange, Irwin & Houran \(2001\)](#) observe that gender seems to have a main effect in socially-oriented beliefs or traditional paranormal beliefs. [Aarnio and Lindeman \(2005\)](#) explain this by pointing out that women's lower analytical and higher intuitive thinking have been shown to be the generative mechanisms for women's larger endorsement of paranormal beliefs compared to men.

Now, although intuitive and lower analytical thinking is linked to cognitive abilities of subjects reporting a paranormal belief, it may be an explanation. Indeed, the link between lower cognitive capacities, higher suggestibility, lack of critical consideration and paranormal beliefs has been repeatedly observed since it was first pointed out more than 30 years ago ([Tobacyk & Milford, 1983](#); [Tobacyk, Miller & Jones, 1984](#); [Musch & Ehrenberg, 2002](#); [Hergovich, 2004](#)) albeit without a satisfactory explanation. Several studies have questioned a direct predictive link between analytical ability and PBs. Thus, [Roe \(1999\)](#) observed that it was the congruence of the contents of the research with participants' existing beliefs that motivated critical analysis rather than their belief in the paranormal. Moreover, cognitive capacity should increase with education, or there is no relationship between belief in and experience with the paranormal and year in college or college major ([Spinelli & al., 2003](#)).

However, cognitive capacities may not be limited to analytical and critical abilities. Several studies emphasise the emergence of a more intuitive form of intelligence, a high emotional intelligence, a creative thinking, positively correlated with paranormal beliefs ([Gianotti, Mohr, Pizzagalli, Lehmann & Brugger, 2001](#); [Bressan, 2002](#); [Dudley, 2002](#); [Genovese, 2005](#)). According to

Aarnio and Lindeman (2005), these differing conclusions arise from the presumption of unidimensional reasoning that prevails in most studies; you are either rational or superstitious. However, according to them, reasoning is bidimensional: an analytical system and an intuitive system, each having evolved separately, with their own neurological basis and function. Some responses attributed to a lack of analytical capacity among paranormal believers could in fact be due to a predominant intuitive system. This same difference would also explain the gender disparity. [Lindeman and Aarnio \(2006\)](#) observe as much: the best measures to distinguish believers (superstitious, magical and paranormal beliefs) from sceptics are ontological confusion and intuitive thinking. Superstitious and other paranormal beliefs arise from the intuitive system and not from a malfunctioning analytical system.

The cognitive function may also be related to age as [Vitulli, Tipton and Rowe \(1999\)](#) have demonstrated a link between age, gender and level of intellectual education and paranormal beliefs, reinforcing the theoretical link between social rejection and PBs. However, these sociodemographic elements prove nothing to [Rice \(2003\)](#) or [Irwin \(2000\)](#), who explain that this may be merely a difference in the interpretation of those items used in the PB measuring scale, which could equally be linked to age and educational level. Indeed, once the differential item functioning (DIF) bias is taken into account, the age and gender effect is extremely low or even non-existent ([Lange & Thalbourne, 2002](#); [Aarnio & Lindeman 2005](#)). Furthermore, for reasons of convenience, many studies have been carried out on a student population and lack the longitudinal data needed to reach effective conclusions.

### *Paranormal Beliefs and Religious Beliefs*

In their Paranormal Belief Scale, [Tobacyk and Milford \(1983\)](#) included traditional religious beliefs among the 7 dimensions of paranormal beliefs, only to observe later on that traditional religiosity is negatively correlated with paranormal belief ([Tobacyk & al., 1984](#)). Of course, this all depends on what is understood by religious belief. Indeed, greater religious belief is associated with greater paranormal belief ([Orenstein, 2002](#)), since, according to [Goode \(2000\)](#), there is an overlap between paranormalism and religious beliefs because religious beliefs also have a paranormal component as creationism, angels and devils, heaven and hell, etc., in short, a shared belief in a non-material causality. An overlap also rooted in prefrontal system functioning between religion and paranormal beliefs ([Wain & Spinella, 2007](#)). Some paranormal experiences are actually quite similar to borderline states of consciousness



(Lange, Thalbourne, Houran, Storm, 2000) which are themselves close to mystic experience (Lange & Thalbourne, 2007). Similarly, awareness of mortality intensifies religiosity and belief in supernatural agents (Norenzayan & Hansen, 2006). Rice (2003) observes that close to 40% of the population hold both traditional religious beliefs and classic paranormal beliefs without any problems. Therefore, religious belief would not indicate an alignment with paranormal belief but with affiliation to a traditional religion (Goode, 2000) characterised by regular participation in religious services (McKinnon, 2003) rendering this a socialisation-based religiosity (Granqvist & Hagekull, 2001). However, it should be noted that while religiosity reduces interest in the paranormal, it does predict openness to the supernatural unless this is moderated by the experience of a negative affect in the preceding year. Indeed, the combination of openness to the supernatural and the experience of a negative affect predicts paranormal belief whereas non-adherence to a religion, moderated by the experience of a negative affect, can predict openness to the supernatural and paranormal (Beck & Miller, 2001). Thus there are certain facets of religious adherence which correlate with certain dimensions of paranormal belief. The confusion linked to sometimes contradictory results arises from the use of generic concepts such as 'religiosity' and 'paranormal' without defining these in terms of specific categories.

## **Comments**

The numerous studies which have demonstrated human deficiencies or highlighted specific abilities have allowed us to identify various elements which in turn enable a better understanding of certain conscious and unconscious reasons for adherence to paranormal beliefs. A general overview should allow PBs to serve as predictors for certain types of psychosocial, cognitive, behavioural and pathological personalities. Indeed, adherence to paranormal beliefs seems to correspond to a type of anxious personality lacking control (which can correspond to schizotypy moderated by cognitive disorganisation) and can be linked to a trauma suffered as a result of abuse or abandonment during childhood. This anxiety can indicate a greater and more spiritualised awareness of the world (Sjöberg & Af Wahlberg, 2002), which acts as a coping mechanism and allows positive human development (Benson, Roehlkepartain & Rude, 2003). It is marked by a more intuitive and emotional intelligence, a less analytical cognitive approach (particularly among women) and adherence to an unconventional religion. Nevertheless, emotional intelligence can also be a

cognitive capacity, allowing greater “creativity” (Gianotti & al., 2001) when the person is stressed by logic they do not understand, a ‘semantic noise’. Anxiety could therefore be a common factor in all the personality traits linked to PB.

However, there is a lack of the longitudinal data needed to establish to what extent adherence to this type of belief serves to compensate, reinforcing certain deficiencies, or whether it allows the individual to overcome them. Indeed, we can acknowledge that the use of paranormal beliefs may allow an individual to establish certain levels of mental control and rationalization when confronted with anxiety, by using a form of intuitive intelligence related to this deficiency (“I trust what I perceive”) rather than analytical intelligence (“I do not trust external information because it could harm me”). However, it is useful to understand to what extent adherence to paranormal beliefs helps individuals to overcome a state of suffering or whether it is merely a crutch to cope with feelings of malaise (Dudley 2000) while the individual remains in a state of suffering. One also wonders, could a fragile personality result from an adherence to a system of individual and irrational beliefs and experiences? Understanding which comes first is fundamental to understanding the purpose of paranormal beliefs for individuals, both in terms of the management and possible trigger of a state of suffering. This could be explored in future research.

With regard to future research, we believe it necessary to study not only form but also content. We have seen how, while some individuals consider the paranormal to be related to walking under a ladder, others consider it the perception of extrasensory phenomena or belief in a form of life after death. To speak about the paranormal in general terms is thus a generalisation which leads to contradictions. There is not one paranormal belief but many paranormal beliefs. Independently of what this concept encompasses, the plurality of beliefs echoes the many dimensions of this type of belief. Where these different dimensions have not been defined, it is difficult, even impossible, to compare and replicate results. Distinguishing and clearly separating each studied dimension will allow a more consistent approach to the role and impact of each paranormal belief.

A fundamental bias arises from the fact that the paranormal is often considered ‘abnormal’. However, literature tells us that a great many individuals are concerned with paranormal beliefs, to such an extent that, statistically, it could hardly be labelled an abnormality. On the other hand, while it is a very real anomaly in the context of the classical scientific system, this is because the paranormal, whether in the form of beliefs or experiences, seems to have a

particular system of knowledge, with specific laws and limits. However, to study a system which has its own rationality and logic from the viewpoint of another system of knowledge can only lead to an epistemological impasse. The arguments put forward by sceptics of PB on one hand, and by supporters of PB on the other, are the products of the epistemological context in which they find themselves. Each addresses a different issue, using different terminology and different scientific approaches. As we have seen, Lindeman and Aarnio (2006) tried to resolve this conflict by defining the paranormal using ontological cross references between different physical, psychic and spiritual realities. But this does not resolve the root of the problem, which is the confusion of two different systems. The only way to avoid this problem is to consider the paranormal as a personal conviction or experience. Indeed, while the study of the form and the subject of an individual's conviction places us in an inaccessible position, the fact of believing and adhering to a particular belief and a defined referential system can be approached from the paradigmatic position commonly used in the scientific field. Whether the concerned phenomena are objectively real or whether they are the results of a sort of pathological or non-pathological subjective induction does not change the fact that people believe in or claim to have experienced something for the various reasons discussed above. Beyond the 'veracity' of the phenomena, there is the reality of human experience.

This is why psychology cannot ignore the psychosocial and clinical impact of these beliefs and practices. To believe is in itself a human reality and is justified in itself. Many decades passed before psychology even dared to address the phenomenon of religious beliefs without prejudice with the necessary distance imposed by the scientific study of a mostly personal and subjective human experience. A similar approach could be taken to research into paranormal beliefs. In studying the impact of religion, spirituality or transcendence on the human experience, psychology does not seek to prove the existence or non-existence of God since this falls outside its paradigmatic field. Similarly, they should not, in our opinion, seek to prove or disprove paranormal phenomena as such (regardless of the form they take: real or illusory, objective or subjective), but should instead take into account that some individuals do adhere to these beliefs. It is this adherence, what it engenders, creates and brings to the individual, what this belief enables or prevents, internally and in different situations, which would constitute a valid subject of a study of paranormal beliefs from a scientific perspective.

## References

- Aarnio, K. & Lindeman, M. (2005). Paranormal beliefs, education and thinking styles. *Personality and Individual Differences*, *39*, 1227-1236.
- Alcock, J.A. (2003). Give the null hypothesis a chance. Reasons to remain doubtful about the existence of Psi. *Journal of Consciousness Studies*, *10*(6-7), 41-49.
- Auton, H.R., Pope, J. & Seeger G. (2003). It isn't that strange: Paranormal belief and personality traits. *Social Behaviour and Personality*, *31*(7), 711-720.
- Beck, R. & Miller, J.P. (2001). Erosion of belief and disbelief: Effects of religiosity and negative affect on beliefs in the paranormal and supernatural. *The Journal of Social Psychology*, *141*(2), 277-287.
- Benson, P.L., Roehlkepartain, E.C. & Rude, S.P. (2003). Spiritual development in childhood and adolescence: Toward a field of inquiry. *Applied Developmental Science*, *7*(3), 205-213.
- Bierman, D.J. (2001). On the nature of anomalous phenomena: Another reality between the world of subjective consciousness and the objective world of physics? In Van Loocke, Philip R., editor, *The physical nature of consciousness* (pp. 269-292), New York: Benjamins Publishers.
- Bobrow, R.S. (2003). Paranormal phenomena in the medical literature: Sufficient smoke to warrant search for fire. *Medical Hypotheses*, *60*, 864-868.
- Bressan, P. (2002). The connection between random sequences, everyday coincidences and belief in the paranormal. *Applied Cognitive Psychology*, *16*, 17-34.
- Burns, J. (2003a). Psi Wars: Getting to grips with the paranormal. *Journal of Consciousness Studies*, *10*, 6-7.
- Burns, J. (2003b). What is beyond the edge of the known world? *Journal of Consciousness Studies*, *10*, 6-7, 7-28.
- Cardena, E., Lynn, S.J. & Krippner, S. (2004). *Varieties of anomalous experience. Examining the scientific evidence*. Washington, DC: American Psychological Association.
- Dag, I. (1999). The relationships among paranormal beliefs, locus of control and psychopathology in a Turkish college sample. *Personality and Individual Differences*, *26*(4), 723-737.
- Delbrouck, M. (2008). *Psychopathologie. Manuel à l'usage du médecin et du psychothérapeute*. Carrefour des psychothérapies. Brussels: De Boeck.
- Dudley, R.T. (1999). The effect of superstitious belief on performance following an unsolvable problem. *Personality and Individual Differences*, *26*, 1057-1064.
- Dudley, R.T. (2000). The relationship between negative affect and paranormal belief. *Personality and Individual Differences*, *28*, 315-321.
- Dudley, R.T. (2002). Order effects in research on paranormal belief. *Psychological Reports*, *90*(2), 665-666.
- French, C. (2003). The relevance of research into eyewitness testimony and false memories for reports of anomalous experiences. *Journal of Consciousness Studies*, *10*(6-7), 153-174.

- Genovese, J.E. (2005). Paranormal beliefs, schizotypy, and thinking styles among teachers and future teachers. *Personality and Individual Differences*, 39(1), 93-102.
- Gianotti, L.R., Mohr, C., Pizzagalli, D., Lehmann, D. & Brugger, P. (2001) Associative processing and paranormal belief. *Psychiatry and Clinical Neurosciences*, 55(6), 595-603.
- Goode, E. (2000). Two paranormalisms or two and a half? An empirical exploration. *Skeptical Inquirer*, 24(1), 29-35.
- Goulding, A. (2005) Healthy schizotypy in a population of paranormal believers and experiencers. *Personality and Individual Differences*, 38(5), 1069-1083.
- Granqvist, P. & Hagekull, B. (2001). Seeking security in the New Age: On attachment and emotional compensation. *Journal for the Scientific Study of Religion*, 40(3), 527-545.
- Hergovich, A. (2003). Field dependence, suggestibility and belief in paranormal phenomena. *Personality and Individual Differences*, 34(2), 195-209.
- Hergovich, A. (2004). The effect of pseudo-psychic demonstrations as dependent on belief in paranormal phenomena and suggestibility. *Personality and Individual Differences*, 36(2), 365-380.
- Hergovich, A., Schott, R. & Arendasy, M. (2008). On the relationship between paranormal belief and schizotypy among adolescents. *Personality and Individual Differences*, 45(2), 119-125.
- Houran, J., Irwin, H.J. & Lange, R. (2001). Clinical relevance of the two-factor Rasch version of the Revised Paranormal Belief Scale. *Personality and Individual Differences*, 31(3), 371-382.
- Irwin, H.J. (2000). Age and sex differences in paranormal beliefs: A response to Vitulli, Tipton & Rowe (1999). *Psychological Reports*, 86(2), 595-596.
- Jeffers, S. (2003). Physics and claims for anomalous effects related to consciousness. *Journal of Consciousness Studies*, 10(6-7), 135-152.
- Lange, R. & Houran, J. (1999). The role of fear in delusions of the paranormal. *Journal of Nervous and Mental Disease*, 187(3), 159-166.
- Lange, R., Thalbourne, M.A., Houran, J. & Storm, L. (2000). The revised Transliminality Scale: Reliability and validity data from a Rasch top-down purification procedure. *Consciousness and Cognition*, 9, 591-617.
- Lange, R., Irwin, H.J. & Houran, J. (2001). Top-down purification of Tobacyk's Revised Paranormal Belief Scale. *Personality and Individual Differences*, 29(1), 131-156.
- Lange, R. & Thalbourne, M.A. (2002). Rasch scaling paranormal belief and experience: structure and semantics of Thalbourne's Australian Sheep-Goat Scale. *Psychological Reports*, 91(3), 1065-1073.
- Lange, R. & Thalbourne, M.A. (2007). The Rasch scaling of mystical experiences: Construct validity and correlates of the Mystical Experience Scale (MES). *International Journal for the Psychology of Religion*, 17(2), 121-140.
- Lindeman, M. & Aarnio, K. (2006). Paranormal beliefs: Their dimensionality and correlates. *European Journal of Personality*, 20(7), 585-602.

- Lindeman, M. & Aarnio, K. (2007). Religious people and paranormal believers. *Journal of Individual Differences*, 28(1), 1-9.
- MacDonald, D.A. & Holland, D. (2003). Spirituality and the MMPI-2. *Journal of Clinical Psychology*, 59(4), 399-410.
- McKinnon, A.M. (2003). The religious, the paranormal and church attendance: A response to Orenstein. *Journal for the Scientific Study of Religion*, 42(2), 299-303.
- Mousseau, M.-C. (2002). *Science, research in the paranormal and irrational belief: What is the link?* Submitted Masters thesis, Dublin City University.
- Muris, P., Merckelbach, H., Peeters, E. (2003). The links between the adolescent dissociative experiences scale (A-DES), fantasy proneness and anxiety symptoms. *Journal of Nervous and Mental Disease*. 191(1), 18-24.
- Musch, J. & Ehrenberg, K. (2002). Probability misjudgement, cognitive ability, and belief in the paranormal. *British Journal of Psychology*, 93(2), 169-177.
- Nasel, D. & Haynes, W. (2005). Spiritual and Religious Dimensions Scale: Development and psychometric analysis. *Australian Journal of Psychology*, 57(1), 61-71.
- Norenzayan, A. & Hansen, I.G. (2006). Belief in supernatural agents in the face of death. *Personality and Social Psychology*, 32(2), 174-187.
- Orenstein, A. (2002). Religion and paranormal belief. *Journal for the Scientific Study of Religion*, 41(2), 301-311.
- Parker, A. (2003). We ask, does Psi exist? But is this the right question and do we really want an answer anyway? *Journal of Consciousness Studies*, 10(6-7), 111-134.
- Perkins, S.L. (2006). Childhood physical abuse and differential development of paranormal belief systems. *Journal of Nervous and Mental Disease*, 194 (5), 349-355.
- Rattet, S.L. & Bursik, K. (2001). Investigating the personality correlates of paranormal belief and precognitive experience. *Personality and Individual Differences*, 31(3), 433-444.
- Rice, T.W. (2003). Believe it or not: Religious and other paranormal beliefs in the United States. *Journal for the Scientific Study of Religion*, 42(1), 95-106.
- Rogers, P., Qualter, P., Phelps, G. & Gardner, K. (2006). Belief in the paranormal, coping and emotional intelligence. *Personality and Individual Differences*, 41(6), 1089-1105.
- Roe, C.A. (1999). Critical thinking and belief in the paranormal: A re-evaluation. *British Journal of Psychology*, 90(1), 85-98.
- Roe, C.A. & Morgan, C.L. (2002). Narcissism and belief in the paranormal. *Psychological Reports*, 90(2), 405-411.
- Roussaux, J-P. & Dubois, V. (2002). La détection précoce de la schizophrénie. *Louvain Med.* 121, 227-232.
- Schofield, K. & Claridge, G. (2007). Paranormal experiences and mental health: Schizotypy as an underlying factor. *Personality and Individual Differences*, 43(7), 1908-1916.

- Sjöberg, L. & Af Wahlberg, A. (2002). Risk perception and New Age beliefs. *Risk Analysis*, *22*, 751.
- Smith D. (2003). The role of the experimenter in parapsychological research. *Journal of Consciousness Studies*, *10*(6-7), 69-84.
- Spinelli, S.N., Reid, H.M. & Norvilitis, J.M. (2003). Belief in and experience with the paranormal: Relation between personality boundaries, executive functioning, gender roles and academic variables. *Imagination, Cognition and Personality*, *21*(4), 333-346.
- Stanovich, K.E. (2004). *How to think straight about psychology*. 7th ed., New York, Pearson's Professional.
- Streib, H. (1999). Off-road religion? A narrative approach to fundamentalist and occult orientations of adolescents. *Journal of Adolescence*, *22*, 255-267.
- Thalbourne, M.A. (2007). Potential psychological predictors of religiosity. *International Journal for the Psychology of Religion*, *17*(4), 333-336.
- Tobacyk, J. & Milford, G. (1983). Belief in paranormal phenomena: Assessment instrument development and implications for personality functioning. *Journal of Personality and Social Psychology*, *44*, 1029-1037.
- Tobacyk, J., Miller, M.J. & Jones, G. (1984). Paranormal beliefs of high school students. *Psychological Reports*, *55*, 255-261.
- Vitulli, W.F., Tipton, S.M. & Rowe, J.L. (1999). Beliefs in the paranormal: Age and sex differences among elderly persons and undergraduate students. *Psychological Reports*, *85*(3), 847-855.
- Wain, O. & Spinella, M. (2007). Executive functions in morality, religion, and paranormal beliefs. *International Journal of Neuroscience*, *117*(1), 135-146.
- Watt, C., Watson, S. & Wilson, L. (2007). Cognitive and psychological mediators of anxiety: Evidence from a study of paranormal belief and perceived childhood control. *Personality and Individual Differences*, *42*(2), 335-343.
- Weiss, A., Egan, V. & Figueredo, A.J. (2004). Sensational interests as a form of intrasexual competition. *Personality and Individual Differences*, *36*(3), 563-573.
- Williams, E., Francis, L. & Robbins, M. (2007). Personality and paranormal belief: A study among adolescents. *Pastoral Psychology*, *56*, 9-14.